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EXAMINER	
STRANGE, AARON N	

ART UNIT	PAPER NUMBER
2153	

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/670,455	POTHIER ET AL.	
	Examiner	Art Unit	
	Aaron Strange	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-4 and 7-25 have been considered but are moot in view of the new ground(s) of rejection.

2. With regard to claim 5, and Applicant's assertion that there is "no indication in that passage [in Tanenbaum] that the receiver would determine the number of packets to be processed by its central process, periodically compare that number with a predetermined threshold and send an acknowledgement packet to the sender when the number of packets to be processed is less than the predetermined threshold", the Examiner respectfully disagrees. Tanenbaum teaches that the number of packets to be processed is determined (the number of packets in the buffer) and compared to a predetermined threshold (1 packet in the buffer). If the number of packets is less than the threshold, (buffer is empty), the acknowledgement is sent back to the sender of the packets (Page 195, Line 37 to Page 197, Line 37).

3. With regard to claim 6, and Applicant's assertion that Simmons does not disclose "detecting an acknowledge request at the central process in a packer received from the card, determining a number of packets to be processed by the central process, comparing the number of packets to be processed to a predetermined threshold, and estimating when the number of packets to be processed will be below the predetermined threshold", the Examiner respectfully disagrees. Simmons discloses a

method for providing flow control for network transmissions in which the receiver's data buffer level is compared to various thresholds (watermarks) to determine the appropriate length of time that the sending station should stop sending data. The closer to full that the buffer is, the longer the sending station is told to wait before resuming the transfer of packets (Col 12, Lines 28-49). This ensures that the data buffer will not overflow and result in lost packets by giving the receiver time to clear out the buffers (Col 13, Lines 32-34). When the sender receives the pause frame, it stops transmitting frames for the duration of time specified in the frame (Col 1, Lines 51-54).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. With regard to claims 1 and 14, the limitation "repeating steps b,c, and d when the acknowledge packet is received at the card" is unclear. Based on the specification of the present application, it appears that steps b,c, and d will only occur when the time specified in the acknowledge packet has elapsed, and will not occur "when the acknowledge packet is received", except in the special case in which the indicated time

is immediately. The Examiner recommends that the claims be amended to reflect the influence of the indicated time on when the steps are repeated.

7. All claims not individually rejected are rejected by virtue of their dependency from the above claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-4,6,8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson et al. in view of Applicant's admitted prior art in further view of Simmons et al. (US 6,167,054).

10. With regard to claims 1 and 6, Stevenson discloses a method of managing distributed statistical data retrieval in a network device, comprising: b. sending a predetermined (Page 52, Lines 17-20) number of packets from the card to the central process (a burst) (Page 54, Lines 19-21), wherein each packet contains at least a portion of the file; c. sending an acknowledge request (set End of Burst flag) to the central process in conjunction with sending the last packet in the predetermined number

and (Page 54, Lines 19-21); d. controlling the number of packets sent from the card to the central process, including: sending an acknowledge packet indicating a time that the card can resume sending packets to the central process from the central process to the card (Page 55, Lines 17-18 and Page 68, Lines 31-35); and repeating steps b,c, and d when the acknowledge packet is received at the card (Multiple burst transactions may be executed) (Page 55, Lines 1-7). Stevenson does not disclose the step of gathering statistical data on at least one card within the network device periodically or that the file transferred comprises statistical data or that the time is based on an estimate of a time interval needed by the central process to process a sufficient number of the received packets to reduce the number of packets awaiting processing below a predetermined threshold.

The system disclosed by Stevenson is directed toward the transfer of a large file, without limitation regarding the type of file transferred. In the background of the present application, Applicant discloses that statistical data may be retrieved from distributed modules within a network device and stored in non-volatile memory. In addition, this data may be moved to a workstation for processing (Application, Page 1, Lines 6-11). Since this data is stored in a file in non-volatile memory, and can potentially be a large amount of data, it could benefit from being transferred in the manner disclosed by Stevenson.

Simmons discloses a method for providing flow control for network transmissions in which the receiver's data buffer level is compared to various thresholds to determine the appropriate length of time that the sending station should stop sending

data in order to give the receiver enough time to process packets in the buffer. The closer to full that the buffer is, the longer the sending station is told to wait before resuming the transfer of packets (Col 12, Lines 28-49). This ensures that the data buffer will not overflow and result in lost packets by giving the receiver time to clear out the buffers (Col 13, Lines 32-34). When the sender receives the pause frame, it stops transmitting frames for the duration of time specified in the frame (Col 1, Lines 51-54). This method of controlling the flow between the sender and receiver is advantageous since it allows flow control to be initiated before the receive buffer is full, at which time data will already have been lost. It also allows the amount of pause time to be variable which makes the throughout more efficient (Col 1, Lines 55-66).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to gather statistical data on at least one card within the network device periodically and transmit the gathered statistical data to the central process as well as compare the number of packets in the receiver's buffer to a predetermined threshold, estimate when the number of packets to be processed will be below the threshold, and inform the sending station how long to wait before sending more packets.

11. With regard to claim 2, Stevenson further discloses that sending an acknowledge request to the central process in conjunction with sending the last packet in the predetermined number, comprises: sending the acknowledge request embedded within the last packet in the predetermined number (Page 54, Figure 6).

12. With regard to claim 3, while the system disclosed by Stevenson in view of Applicant's admitted prior art and Simmons shows substantial features of the claimed invention (discussed above), it fails to disclose that sending an acknowledge request to the central process in conjunction with sending the last packet in the predetermined number, comprises: sending the acknowledge request in an acknowledge request packet separate from the last packet in the predetermined number.

However, it is clear that sending the acknowledge request in an acknowledge request packet separate from the last packet in the predetermined number would not change the functionality of the invention. The acknowledge request serves only to notify the receiver that the burst transmission is complete so the receiver can determine if all the data was properly received. As long as the acknowledge request is received in a timely manner, it is not important how the receiver gets it. In some instances, it may be advantageous to send the acknowledge request in a separate packet. If the acknowledge request is to be embedded in the last packet, the space for the request must be located in the header of every packet, since any packet could be the last one. This results in wasted bandwidth since few of the total packets sent are the last packet in a burst.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to send the acknowledge request in an acknowledge request packet separate from the last packet in the predetermined number. This way,

no space in the packet header must be reserved for acknowledge requests, reducing overhead on the network.

13. With regard to claim 4, Stevenson further discloses that sending an acknowledge packet from the central process to the card comprises: detecting an acknowledge request at the central process in a packet received from the card (Determine if End Of Burst flag is set) (Page 54, Lines 19-21); and sending the acknowledge packet to the card from the central process (reply with then burst expected next)(Page 68, Lines 31-35).

14. With regard to claim 8, Applicant further discloses that it is known to gather statistical data on at least one card within the network device periodically by gathering a current statistical data sample periodically at a first period (15 minutes) (Application, Page 1, Lines 18-19).

15. With regard to claim 12, while the system disclosed by Stevenson in view of Applicant's admitted prior art and Simmons shows substantial features of the claimed invention (discussed above), it fails to specifically disclose gathering second statistical data on a second card within the network device periodically and sending the second statistical data to the central process.

However, it is well-known in the art that many network devices such as routers

can and usually do consist of a plurality of network cards. In most cases, the cards are attached to different network segments and can record information about those segments. It would be advantageous for the central process to be able to retrieve data from all of the cards located in a network device so that it could receive the most accurate information regarding the network segments which the device is attached to.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to allow all of the cards located within a network device to send statistics to the central process for analysis. Since each card is usually connected to a different network segment, each card can provide statistics that are not available to the other cards in the device.

16. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson et al. in view of Applicant's admitted prior art in further view of Tanenbaum.

17. With regard to claim 5, while the system disclosed by Stevenson in view of Applicant's admitted prior art shows substantial features of the claimed invention (discussed above regarding claim 1), it fails to disclose that sending an acknowledge packet from the central process to the card comprises: detecting an acknowledge request at the central process in a packet received from the card; determining a number of packets to be processed by the central process; comparing the number of packets to be processed to a predetermined threshold periodically; and sending the acknowledge

packet to the card from the central process when the number of packets to be processed is less that the predetermined threshold.

Tanenbaum discloses a well-known flow control method for network transmissions which allows the receiver to stop the sender from sending any more data until the receiver has enough buffer space. Since the size of the packet bursts disclosed by Stevenson et al. are known to the receiver (window size), it can easily determine if enough space remains in the buffer. It would be logical and advantageous to delay the acknowledge packet until the buffer has enough space to hold another burst. As disclosed by Tanenbaum, delaying the acknowledgement until the receiver has time to process the packets prevents the sender from sending data faster than in can be processed by the receiver (Page 195, Line 37 to Page 196, Line 5). This prevents data form being lost due to buffer overflows.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the protocol disclosed by Stevenson in view of Applicant's admitted prior art to follow the structure taught by Tanenbaum. By delaying the acknowledge packet until the buffer is sufficiently empty to hold another burst transmission, date loss due to buffer overflow is prevented. This also reduces the load on the network since the lost data does not need to be retransmitted.

18. Claims 9-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson et al. in view of Applicant's admitted prior art in further view of Simmons et al. (US 6,167,054) in further view of Tanenbaum.

19. With regard to claim 9, while the system disclosed by Stevenson in view of Applicant's admitted prior art and Simmons shows substantial features of the claimed invention (discussed above), it fails to disclose that gathering statistical data on at least one card within the network device periodically comprises adding the current statistical data sample to a data summary each time the current statistical data sample is gathered.

Tanenbaum discloses SNMP, a standard protocol for collecting and communicating information about network devices. Tanenbaum discloses that statistics are collected about network devices such as routers, which is stored in various fields in the devices. Many of the statistics, such as discarded packets, are added to a data summary each time the current statistical data sample is gathered (Page 642, Lines 11-15). As further disclosed by Tanenbaum, these summaries are particularly useful for managing routers (page 642, Lines 14-15).

Therefore, it would have been it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the current statistical data sample to a data summary each time the current data sample is gathered. This allows the statistics to be collected over time and provide more meaningful information regarding the performance of the network devices, such as the number of packets discarded by a router over time.

20. With regard to claim 10, while the system disclosed by Stevenson in view of Applicant's admitted prior art and Simmons shows substantial features of the claimed invention (discussed above), it fails to disclose that sending packets from the card to a central process comprises: sending packets containing at least a portion of the current statistical data sample from the card to the central process periodically at a first period; and sending packets containing at least a portion of the data summary from the card to the central process periodically at a second period.

Tanenbaum discloses SNMP, a standard protocol for collecting and communicating information about network devices. Tanenbaum discloses that statistics are collected about network devices such as routers, which is stored in various fields or tables in the devices. These statistics can then be requested by a management station (Page 643, Lines 8-19). A busy network would generate a significant amount of data, so the tables that contain summaries of the data could get very large. Transmitting a large table would be very time consuming and would create congestion on the network. It would be advantageous to transmit large tables at a different period than single variables, to prevent unnecessary congestion while still allowing the management station to access the variables at any time.

Therefore, it would have been it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit large tables at a different frequency than single variables since they consume large amounts of bandwidth and cause congestion in the network. For example, single variables could be transmitted every minute, while large summary tables may only be transmitted once per day during

a period of low network usage. This would allow the statistics to be retrieved and analyzed without creating unnecessary congestion.

21. With regard to claim 11, as discussed regarding claim 10, the second period is longer than the first period (Every minute vs. Once Daily). This prevents the large data summaries from causing congestion by frequent transmission while still allowing individual variables to be transmitted frequently for real-time analysis of the network.

22. With regard to claim 13, while the system disclosed by Stevenson in view of Applicant's admitted prior art and Simmons shows substantial features of the claimed invention (discussed above), it fails to disclose that the data is first statistical data and wherein the method further comprises: gathering second statistical data on the card sending the second statistical data to the central process.

Tanenbaum discloses SNMP, a standard protocol for collecting and communicating information about network devices. Tanenbaum discloses that multiple types of statistics are collected about network devices such as routers, and stored in various fields or tables in the devices (Page 641, Lines 1-9 and Fig 7-37). These fields can subsequently be retrieved by a management station using various commands (Page 643, Fig 7-38). Since all of these statistics are collected for each device, it would be advantageous to allow multiple data types to be collected and transmitted to the central process.

Therefore, it would have been it would have been obvious to one of ordinary skill in the art at the time the invention was made to collect and send multiple types of data from the card to the central process. Many different statistics are useful to the central process for network management, but they are of little use if they remain on the devices unread.

23. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson et al. in view of Applicant's admitted prior art in further view of Simmons et al. (US 6,167,054) in further view of Ramakrishnan (US 6,167,029).

24. With regard to claim 7, while the system disclosed by Stevenson in view of Applicant's admitted prior art and Simmons shows substantial features of the claimed invention (discussed above), it fails to disclose that if the number of packets to be processed is below the predetermined threshold, then the indicated time is immediately.

Ramakrishnan discloses a similar system to Simmons in which pause frames are used to control the flow of a network transmission. Ramakrishnan discloses a pause frame with a pause time of 0, indicating that the sender can begin transmission immediately. This frame is used for resuming a paused transmission and would be particularly useful for resuming a station that was previously told to pause for a long time in the event that the buffer was cleared faster than originally estimated.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention as made to explicitly place a pause time of 0 in the acknowledge

packet if buffer space is available. This would allow a paused sender to be resumed in the event that the buffer is cleared faster than the originally estimated, reducing the amount of time in which the network is not being utilized.

25. Claims 14-25 are rejected under the same rationale as claims 1-13, since they recite substantially identical subject matter. Any differences between the claims do not result in patentably distinct claims and all of the limitations are taught by the above cited art.

26. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeLuca et al. (US 6,792,455) in view of Applicant's admitted prior art.

27. With regard to claim 24, DeLuca discloses a method of managing distributed statistical data retrieval in a network device, comprising:

gathering a plurality of different types of statistical data (capacity planning and performance monitoring) on at least one card within the network device periodically (Col 10, Lines 44-47);

sending groups of packets from the card to a central process at staggered times, wherein each group of packets includes one of different types of statistical data wherein the staggered times are determined by a plurality of polling timers, each corresponding to one of said statistical data types (capacity planning and performance monitoring data are reported at different intervals) (Col 11, Lines 36-53).

While DeLuca discloses that capacity planning and performance monitoring data is collected to monitor various hardware in a network, DeLuca fails to specifically disclose that the plurality of types of statistical data are collected on a card in the network device.

In the background of the present application, Applicant discloses that statistical data such as performance or fault monitoring data may be retrieved from distributed modules within a network device and stored in non-volatile memory. In addition, this data may be moved to a workstation for processing (Application, Page 1, Lines 6-11). This type of information would be of interest in a performance monitoring system such as the one disclosed by DeLuca, so it would have been advantageous to collect performance data from cards in network devices within the system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to collect performance information from cards within a network in order to perform performance monitoring and capacity planning for that network.

28. With regard to claim 25, DeLuca further discloses gathering each of the different types of statistical data at a different time (performance monitoring data is gathered more frequently than capacity planning data)(Col 11, Lines 25-32).

Conclusion

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Strange whose telephone number is 571-272-3959. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS
10/27/2005

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